CalTek.Net 2.0: Community-Driven Digital Testimony Networks

Innovation Grant Proposal 2050 - $75,000 Funding Cycle

Second Incubation: From Community Technology to Civic Mesh Infrastructure

Principal Investigator: Kenneth Wyrick
Organization: CalTek.Net - Tutortronics DBA / Kenneth M. Wyrick
Community Coalition: BridgeLA.org Partnership Network
Infrastructure Partner: CENIC.org CalREN Integration
Founding Vision: "Technology as Community Infrastructure, Not Corporate Extraction"

Project Genesis: The Second Incubation

CalTek.Net's First Life and Rebirth

CalTek.Net emerged from the vision to rebuild what the disbanded Community Technology Centers' Network (CTCNet) provided - but adapted for California's unique digital infrastructure advantages. After initial development as a fiscally sponsored project, CalTek.Net now seeks its second incubation, evolved into a comprehensive model that demonstrates how **nonprofits as social enterprises using open source software can improve collaboration, resulting in diversity, and through fine arts and water consciousness, we can do more with less.**

Historical Foundation: CENIC's Pre-2000 Vision Realized

CENIC was created in 1997, with CalREN first becoming operational in 1998, and in 2000, the State of California provided funding for the Digital California Project, which allowed K-12 schools to connect to CalREN. The original vision included community-level mesh networks that would extend educational infrastructure into neighborhoods - a vision that stalled but can now be realized through Los Angeles Neighborhood Council integration.

Los Angeles Neighborhood Council Districts: Democratic Infrastructure

There are currently 99 Neighborhood Councils in Los Angeles, each serving about 40,000 people, established in 1999 as advisory bodies who advocate for their communities with City Hall on important issues like development, homelessness, and emergency preparedness. This creates the perfect governance structure for community-controlled mesh wifi infrastructure.

Integrated Platform Architecture: Community as Living System

The CalTek.Net 2.0 Ecosystem

Our approach treats technology like water - essential infrastructure that flows through communities, nourishing collaborative networks while requiring conscious stewardship. **Water consciousness** guides our resource management: technology should flow to where it's needed most, be conserved and reused, and never pollute the community environment.

Component	Community Function	Mesh Integration	Sustainability Principle
Ushahidi	Digital testimony collection	Distributed across mesh nodes	Community voices as flowing data streams
LA Neighborhood Councils	Democratic governance	99 councils = 99 mesh network zones	Local control like watershed management
CENIC CalREN	Educational backbone	High-capacity uplink infrastructure	Renewable energy/circular economy
OSGeo Live	Spatial intelligence	Geographic mesh optimization	Environmental mapping consciousness
eXeLearning	Multilingual content creation	Distributed content delivery	Cultural preservation through technology
Open Source Social Enterprise	Collaborative economics	Community-owned infrastructure	Do more with less, share abundance

Mesh Municipal WiFi: Realizing CENIC's Original Vision

CENIC's work with districts like East Side Union High School District and the city of San Jose shows mesh Wi-Fi solutions using unlicensed 2.4 GHz and 5 GHz frequencies, with access points installed on city light and traffic signal poles. Our model extends this to all 99 LA Neighborhood Council districts.

CalTek.Net Mesh Architecture:

- **Community Nodes:** Every Neighborhood Council becomes a mesh zone coordinator
- **Cultural Hubs:** Libraries, community centers, and art spaces as mesh anchor points
- **Educational Integration:** CENIC aims for a minimum of 1 Gbps symmetrical regardless of fiber or wireless extended to community level
- **Democratic Control:** Community ownership model preventing corporate extraction

---

Nonprofits as Social Enterprises: The Collaboration Catalyst

Open Source Software Driving Diversity

Open source provides an incredible opportunity for philanthropists looking to multiply their efforts. By open sourcing your code, you create a virtual asset often unattainable by most organizations. Our social enterprise model demonstrates how collaboration creates abundance rather than scarcity.

The Diversity-Through-Collaboration Formula

Open Source + Community Control = Increased Diversity

Social capital is beneficial for prolonged engagement for both genders, and women are at disadvantage in teams lacking diversity in expertise. CalTek.Net 2.0 deliberately creates diverse technical teams through:

1. **Multilingual Development:** All platforms support Spanish, Korean, Chinese, Armenian, Arabic reflecting LA's linguistic diversity
2. **Intergenerational Mentorship:** Pairing senior technologists with community youth
3. **Cross-Sector Collaboration:** Tech workers, artists, community organizers, water advocates
4. **Gender-Inclusive Leadership:** Women-led technology circles in each Neighborhood Council

Social Enterprise Revenue Model

Year 1-2: Incubation Funding

- $75k innovation grant + community matching funds
- BridgeLA.org network resource sharing
- Volunteer technical labor + skill exchanges

Year 3-5: Cooperative Economics

- Mesh network service cooperatives owned by Neighborhood Councils
- Community technology training and certification programs
- Digital art and water consciousness education workshops
- Open source consulting services to other regions

Year 6+: Sustainable Abundance

- Technology cooperative network generates revenue for community projects
- Export model to other cities as open source platform
- Fine arts and environmental education programming
- Water-conscious technology research and development

Fine Arts Integration: Technology as Creative Medium

Art as Community Testimony Platform

Art has the power to communicate complex ideas and evoke emotional responses, making it a potent tool for raising awareness about environmental issues. CalTek.Net 2.0 integrates fine arts as essential infrastructure, not decorative addition.

Community Digital Art Initiatives

1. Neighborhood Testimony Murals

- Community artists use Ushahidi data to create physical murals showing neighborhood needs and resources
- QR codes on murals link to mesh network portals for deeper community engagement
- Multigenerational art creation workshops building community connection

2. Water Consciousness Art Installations

- Eco-visualisation can provide real time visual feedback that can increase conservation behaviour or environmental awareness
- Community technology centers display real-time water and energy usage through artistic installations
- Community members create digital art using recycled electronics and sustainable materials

3. Digital Storytelling Networks

- eXeLearning platforms support community members creating multimedia stories
- Neighborhood Council meetings feature community-created digital art presentations
- Children and seniors collaborate on technology-mediated art projects

Artists as Technology Advocates

Art can say, 'Why is there one place in the world where this coral thrives? And what can we learn from that? How can we learn from this coral?' - applying this approach to community technology resilience.

Community Technology Artists Program:

- Artists-in-residence at community technology centers
- Art projects that visualize digital divide patterns using OSGeo mapping
- Community workshops combining traditional arts with digital tools
- Public art installations powered by community mesh networks

---

Water Consciousness: Sustainable Technology Philosophy

"Do More With Less" Applied to Digital Infrastructure

Digital could become a major driver for responsible water use by providing data on smart management and measurements of water use. Our water consciousness principle guides all technology decisions:

Technological Water Wisdom

Conservation Principles:

- **Circular Technology:** Refurbish and reuse devices rather than constant upgrades
- **Efficient Resource Use:** Low-power mesh networking, solar charging stations
- **Community Sharing:** Device libraries and tool lending programs
- **Regenerative Design:** Technology choices that improve community health over time

Resource Flow Management:

- **Bandwidth as Watershed:** Manage community internet like precious water resources
- **Digital Pollution Prevention:** Open source software prevents vendor lock-in extraction
- **Community Aquifer Protection:** Local data storage and community-controlled privacy

Environmental Justice Through Technology

Community technology centers become **environmental justice hubs** combining:

- Real-time air and water quality monitoring using OSGeo tools
- Community health data collection through Ushahidi platforms
- Environmental advocacy coordination through mesh networks
- Youth environmental leadership development through technology training

---

California CTE Integration: Water-Conscious Technology Pathways

Neighborhood Council-Based CTE Programs

The CTE standards specify learning goals in 58 career pathways organized around 15 industry sectors, incorporating cutting-edge knowledge about career options, technology, and skills required for success in adult life. Our approach creates community-controlled career pathways.

New CTE Pathway: "Community Technology Stewardship"

Core Competencies:

1. **Mesh Network Installation and Management** (ICT pathway)
2. **Community Digital Art and Media Production** (Arts, Media & Entertainment pathway)
3. **Environmental Technology Integration** (Engineering & Architecture pathway)
4. **Cooperative Economics and Social Enterprise Development** (Business & Finance pathway)
5. **Community Organizing and Civic Technology** (Public Services pathway)

Learning Environments:

- Real mesh network installation projects in Neighborhood Council districts
- Community art and technology collaborative projects
- Water consciousness and sustainability technology research
- Youth teaching seniors digital literacy through art projects

Community College Partnership Integration

Los Angeles Community College District + CalTek.Net:

- LACCD students earn credits through community technology service learning
- Community colleges use CENIC's CalREN network to support community mesh projects
- Associate degrees in Community Technology Stewardship
- Transfer pathways to UC/CSU programs in environmental technology and social innovation

---

Implementation Strategy: Organic Network Growth

Phase 1: Pilot Neighborhood Council Integration (Months 1-6) - $25,000

Target Areas: 5 Neighborhood Council districts representing diverse communities

- Urban dense: Hollywood/East Hollywood
- Multilingual: Pico-Union/Koreatown
- Environmental justice: Wilmington/Harbor Gateway
- Arts-focused: Arts District/Downtown LA
- Youth-centered: South LA/Watts

Core Infrastructure:

- Deploy TurnKey Linux Ushahidi instances at community centers in each district
- Establish mesh network pilot zones using CENIC backhaul connections
- Train initial cohort of 15 Community Technology Stewards
- Launch community digital art workshops integrating eXeLearning platforms

Phase 2: Network Expansion and Arts Integration (Months 7-12) - $30,000

Scaling Strategy:

- Expand to 15 total Neighborhood Council districts
- Establish BridgeLA.org partnership integration across pilot areas
- Launch Community Technology Cooperative economic development
- Create multilingual digital arts curriculum using eXeLearning

Fine Arts Programming:

- Community testimony mural projects in each pilot district
- Water consciousness art installations at technology centers
- Youth-senior digital storytelling collaboratives
- Neighborhood Council meeting arts and technology presentations

Phase 3: Sustainable Network Operation (Months 13-18) - $20,000

Cooperative Development:

- Transition mesh networks to community cooperative ownership
- Establish Community Technology Stewardship certification programs
- Launch social enterprise revenue generation activities
- Create replication toolkit for other California regions

Water Consciousness Integration:

- Community environmental monitoring using mesh-connected sensors
- Water conservation technology art installations
- Climate resilience community organizing through technology platforms
- Sustainable technology research and development projects

Innovation Elements: Unique California Leadership

1. Neighborhood Council Democratic Mesh Governance

First-of-its-kind: 99 Neighborhood Councils each serving about 40,000 people become the governance structure for community-owned mesh networks, creating the largest democratically-controlled municipal wifi system.

2. CENIC Community Extension Model

Historical Vision Realized: Extending CENIC's California Research and Education Network with more than 8,000 miles of optical fiber serving over 20 million users directly into community-controlled infrastructure.

3. Art-Technology-Environment Integration

Water Consciousness Technology: Art serves as a powerful vehicle for advancing sustainability by raising awareness, advocating for eco-conscious practices, and fostering empathy towards the environment - integrated into all technology systems.

4. Open Source Social Enterprise Ecosystem

Collaboration-Driven Diversity: Open source applications are seen as more reliable than proprietary solutions and enable individual responsibility for quality while being driven by initiative and ideas rather than profit.

Expected Outcomes: Community Technology as Living System

Quantitative Impact Metrics

Network Development:

- 15 Neighborhood Council districts with active mesh networks
- 500 community members trained in technology stewardship
- 50 Community Technology Steward certifications awarded
- 25 community digital art projects created

Educational Integration:

- 100 students enrolled in Community Technology Stewardship pathways
- 200 youth-senior technology mentorship pairs
- 75 multilingual digital literacy graduates
- 10 community college transfer pathway completions

Social Enterprise Development:

- 5 Community Technology Cooperatives established
- $150,000 in community-controlled technology revenue generated
- 15 social enterprise business plans developed
- 8 replication partnerships with other California cities

Qualitative Impact Indicators

Community Empowerment:

- Neighborhood Councils report increased civic participation through technology access
- Community members demonstrate improved digital literacy and creative technology use
- Local artists integrate technology tools into community organizing and cultural preservation
- Seniors and youth develop meaningful intergenerational technology partnerships

Systems Change:

- Los Angeles positioned as national model for community-controlled technology infrastructure
- California Community Colleges integrate community technology stewardship into standard CTE offerings
- Open source technology cooperatives replicated in other regions
- Water consciousness and environmental justice integrated into technology education statewide

---

Risk Management: Community Resilience Principles

Technical Resilience

Challenge: Mesh network reliability and community technical support **Mitigation:** Mesh networks "heal" themselves when a node stops functioning because nodes can communicate with each other + trained Community Technology Stewards

Challenge: Integration complexity with CENIC infrastructure
Mitigation: CENIC already works with wireless edge networks to connect hard-to-reach areas + pilot approach with willing partners

Community Ownership Risks

Challenge: Corporate or government co-optation of community infrastructure **Mitigation:** Legal cooperative ownership structure + Neighborhood Council democratic governance + open source technology prevents vendor lock-in

Challenge: Community capacity for technical infrastructure management **Mitigation:** Community Technology Stewardship training + intergenerational mentorship + partnership with BridgeLA.org expertise

Sustainability Challenges

Challenge: Long-term financing without compromising community control **Mitigation:** Social enterprise revenue model + technology cooperative economics + water-conscious resource management + community ownership prevents extraction

Kenneth Wyrick's Leadership: Community Technology Visionary

Decade of Community Technology Development

Open Source Advocacy: Deep experience implementing community-controlled technology solutions using libre software principles

Community Organizing Integration: Understanding that technology serves community organizing, not the reverse - technology as tool for community self-determination

Educational Technology Innovation: Instructor experience bridging formal education with community-based learning through technology integration

Network Building Expertise: Connections across California's digital equity ecosystem through BridgeLA.org, Community Partners history, and CENIC relationships

Organizational Evolution and Learning

Community Partners Foundation (Historical): Experience with nonprofit fiscal sponsorship and community project development **Tutortronics DBA (Current):** Business operations and independent contractor capacity **BridgeLA.org Partnership (Community):** Direct relationships with grassroots digital divide organizations
CENIC Integration (Strategic): Educational technology sector relationships and infrastructure access

Vision Integration: Technology as Community Commons

Kenneth's approach treats community technology infrastructure like **community gardens** - spaces that require collective stewardship, produce abundance for sharing, strengthen community relationships, and demonstrate that **we can do more with less** when we work together rather than compete.

Conclusion: Digital Testimony as Community Infrastructure

CalTek.Net 2.0 represents Kenneth Wyrick's evolved understanding that community technology is most powerful when it integrates **democratic governance** (Neighborhood Councils), **artistic expression** (fine arts programming), **environmental wisdom** (water consciousness), and **cooperative economics** (social enterprise development) into a living system that strengthens community rather than extracting from it.

The $75,000 investment catalyzes a sustainable network that continues growing through community ownership rather than corporate control. Through authentic collaboration between artists, technologists, community organizers, and environmental advocates, CalTek.Net 2.0 demonstrates how **nonprofits as social enterprises using open source software can improve collaboration, resulting in diversity, and through fine arts and water consciousness, we can do more with less.**

This second incubation builds on everything learned from the first CalTek.Net iteration while integrating the mesh municipal wifi infrastructure that was part of CENIC's original pre-2000 vision. By rooting technology in community democracy, artistic expression, and environmental consciousness, we create **technology as community infrastructure** rather than corporate extraction.

Building community technology networks that flow like water, strengthen like art, and grow through cooperation.

"Our role is not to bring technology to communities, but to support communities in controlling technology for their own flourishing. Technology should serve community like water serves life - essential, flowing, renewable, and never owned by those who would restrict access for profit."

- Kenneth Wyrick, CalTek.Net Founder

Contact Information

Kenneth M. Wyrick, Principal Investigator
CalTek.Net 2.0 - Community Technology Network Development
Web: http://16.caltek.net/kenneth-wyrick
Community Partnerships: BridgeLA.org Digital Equity Network
Infrastructure Integration: CENIC.org CalREN Extension Initiative
Coalition: Los Angeles Neighborhood Council Technology Stewardship Alliance

Second Incubation - First Time Realizing the Full Vision